

REMARKS

Claims 1-17, 19, 20, 22-28, 30, 32, 34-36, 39, 41 and 43-46 are pending.

Claims 18, 21, 29, 31, 33, 37-38, 40, and 42 have been cancelled.

Claim 47 has been added.

In the Office Action dated November 12, 2008, claims 1-8, 10, 11, 41 and 46 were rejected under 35 U.S.C. § 101 because the subject matter of these claims is directed to a program per se, which is nonstatutory subject matter; claims 1, 9, 10, 22-28, 30, 32, 34, 35, 41 and 46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bryant, US 5,628,023 in view of Bishop Computer Security, Chapter 29.5 "Common Security-Related Programming Problems"; claims 1, 2, 4, 7-9, 11 -15 and 46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Beukema US Patent Application Publication No. 2002/0124148 in view of Bishop; claims 16, 17, 19, 20, 22, 25, 36, 39, 43, 44 and 45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hind, US 6,976,163 in view of Bryant; and claims 1 and 3-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over England, US 7,194,092 in view of Bishop.

REJECTION UNDER 35 U.S.C. § 101

Independent claim 1 has been amended to recite that the memory access manager includes at least hardware. This covers the possible implementations where the memory access manager may be implemented as a software module executable on hardware such as a processor, where the memory access manager is entirely hardware-based, or where the memory access manager is firmware-based. *See* Spec., p. 8, ln. 30 – p. 9, ln. 8.

In view of the amendment of claim 1, withdrawal of the § 101 rejection is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103

Independent Claim 22

Independent claim 22 was rejected as purportedly obvious over Bryant in view of Bishop, or alternatively, over Hind in view of Bryant.

To make a determination under 35 U.S.C. § 103, several basic factual inquiries must be performed, including determining the scope and content of the prior art, and ascertaining the differences between the prior art and the claims at issue. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459 (1965). Moreover, as held by the U.S. Supreme Court, it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine reference teachings in the manner that the claimed invention does. *KSR International Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007).

As conceded by the Office Action, Bryant fails to disclose rendering the memory protection key in the memory write command inaccessible by overwriting at least a portion of the memory protection key upon completion of the memory write command. 11/12/2008 Office Action at 4. Instead, the Office Action cited Bishop as purportedly disclosing the claimed feature missing from Bryant. *Id.* at 5.

It is respectfully submitted that a person of ordinary skill in the art would not have been prompted to combine the teachings of Bryant and Bishop. As taught by Bryant, a user program stores a token in a register location. Bryant 19:41-42. Subsequently, when the user program issues an instruction to modify the information currently stored in a previously protected page, the user program issues a special instruction that retrieves the token from the register and provides the token to the hardware. *Id.* 19:43-50. The token that is provided by the user program (retrieved from the register) is compared to a token assigned to a protected page frame, and if the tokens match, the hardware permits the user program to update the protected memory location. *Id.* 19:59-67.

As specifically taught by Bryant, the user program stores the token in the register **for future use**, i.e., for retrieval when using one of the special instructions. *Id.*, 17:35-37. As further taught by Bryant, “other programs can be authorized to store to the protected page if they are provided with the location of the register storing the token.” *Id.* 17:37-40. Thus, Bryant actually teaches away from the claimed invention, which recites that the memory protection key

in the memory write command that has been written to the volatile memory is rendered **inaccessible** by overwriting at least a portion of the memory protection key in the volatile memory upon completion of the memory write command to make the memory protection key in the volatile memory **inaccessible after completion of the memory write command**.

In other words, the teachings of Bryant would have led a person of ordinary skill in the art away from the claimed invention, and away from using the techniques mentioned in Bishop regarding erasing, deleting, or deallocating sensitive information.

Stated differently, if the techniques of Bishop were to be applied to the teachings of Bryant, then Bryant would have been rendered inoperable for its intended purpose, which is to allow the token in the register to be accessible for future memory operations or even for use by other programs. The objective evidence of record thus establishes that a person of ordinary skill in the art would have found no reason to combine the teachings of Bryant and Bishop to achieve the claimed invention.

Therefore, claim 22 is non-obvious over Bryant and Bishop.

Independent claim 22 was alternatively rejected as obvious over Hind and Bryant. In the rejection of claim 22, the Office Action cited Hind as purportedly disclosing “a method to remotely update software via update rules contained in the update; receiving the update comprises receiving, via a wireless receiver.” 11/12/2008 Office Action at 15. It is noted that claim 22 does not recite the subject matter that was paraphrased on page 15 of the Office Action in the rejection of claim 22. In any event, it appears that the Office Action has conceded that Hind fails to disclose the remaining elements of claim 22. Instead, the Office Action cited Bryant as purportedly disclosing the vast majority of the elements of claim 22. *Id.* at 16.

As discussed above, it is clear that Bryant provides absolutely no hint whatsoever of rendering the memory protection key in the memory write command that has been written to the volatile memory inaccessible by overwriting at least a portion of the memory protection key in the volatile memory upon completion of the memory write command to make the memory protection key in the volatile memory inaccessible after completion of the memory write command. In fact, Bryant teaches away from the claimed subject matter.

Therefore, a person of ordinary skill in the art clearly would not have been prompted to combine the teachings of Hind and Bryant (even after considering the teachings of Bishop) to

achieve the claimed invention. As noted above, if the techniques of Bishop were to be applied to the teachings of Bryant, then Bryant would be rendered inoperable for its intended purpose, which is strongly indicative of the fact that a person of ordinary skill in the art would not have been prompted to combine the teachings of the references to achieve the claimed invention.

Therefore, claim 22 is also non-obvious over Hind and Bryant.

Independent Claims 16 and 36

Independent claim 16 was rejected as purportedly obvious over Hind and Bryant. With respect to claim 16, the Office Action stated that “Hind discloses an electronic device comprising a memory; a wireless receiver configured to receive data relating to a remote software update to be written to the memory, and means to securely update the software files via update rules.” 11/12/2008 Office Action at 12-13. It is noted that claim 16 does not recite “means to securely update the software files via update rules.” In any event, it appears that the Office Action has conceded that Hind fails to disclose all remaining elements of claim 16, including the “memory protection system” element and the “volatile storage” element of claim 16. Instead, the Office Action cited Bryant as purportedly disclosing these claimed features that were conceded to be missing from Hind. *Id.* at 13.

The “volatile storage” clause of claim 16 recites:

volatile storage having unprotected memory locations, the memory protection system configured to download the received data including the key to the unprotected memory locations of the volatile storage prior to writing the received data to the protected memory locations, and the memory protection system to render the key inaccessible by overwriting at least a portion of the key.

As discussed above, Bryant teaches away from this claimed subject matter, since Bryant contemplates that the token contained in its register is made accessible for **future use** by the user program or by other programs. Bryant, 17:35-40. Thus, a person of ordinary skill in the art would have been led away from making the combination of Hind and Bryant to achieve the subject matter of claim 16. In fact, even if the teachings of Bishop were to be considered, this person of ordinary skill in the art would still have not have found any reason to combine the reference teachings, since applying the teachings of Bishop to Bryant would have rendered the system in Bryant inoperable for its intended purpose.

In view of the foregoing, it is respectfully submitted that the obviousness rejection of claim 16 is defective.

Independent claim 36 was also rejected as purportedly obvious over Hind in view of Bryant. For similar reasons as stated above with respect to claim 16, the obviousness rejection of claim 36 over Hind and Bryant is also defective.

Independent Claim 1

Independent claim 1 was rejected as purportedly obvious over Bryant in view of Bishop, or Beukema in view of Bishop, or England in view of Bishop.

As discussed above, no reason existed that would have prompted a person of ordinary skill in the art to combine the teachings of Bryant and Bishop. Therefore, the obviousness rejection of claim 1 over Bryant and Bishop is clearly defective.

The obviousness rejection of claim 1 over Beukema and Bishop is also defective. Beukema describes accessing a protection/translation table to retrieve a protection key, and to compare the protection key to a protection key received in an access to main memory. Beukema, ¶ [0054]. However, there is no hint in Beukema of any desirability to render this protection key inaccessible by overwriting at least a portion of such protection key. Therefore, a person of ordinary skill in the art would not have been prompted to combine the teachings of Beukema and Bishop to achieve the claimed subject matter.

In fact, this point is reinforced by the teachings of Bryant, which constitutes objective evidence that a person of ordinary skill in the art would have been led away from the claimed invention. Therefore, claim 1 is also non-obvious over Beukema and Bishop is also defective.

The obviousness rejection of independent claim 1 over England and Bishop is also defective. England refers to an application passing a rights manager certificate and application storage key to a digital rights management operating system (DRMOS). The DRMOS validates the key and compares the rights manager certificate against an access predicate. The DRMOS also determines if the application's use of the content is permitted under the license and allows access if it is. England, 10:41-51. However, England does not disclose or hint at rendering a memory protection key inaccessible by overwriting at least a portion of the memory protection key. In fact, there is nothing in England to hint at any desirability of incorporating such a

feature. Therefore, a person of ordinary skill in the art would not have been prompted to incorporate the teachings of Bishop in England to achieve the claimed subject matter.

Again, the teachings of Bryant constitute objective evidence that a person of ordinary skill in the art would have been led away from the invention. Therefore, claim 1 is also non-obvious over England and Bishop.

CONCLUSION

Dependent claims are allowable for at least the same reasons as corresponding independent claims. In view of the allowability of base claims, it is respectfully submitted that the obviousness rejections of dependent claims have been overcome.

Allowance of all claims is respectfully requested. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 14-1315 (15923ROUS04U).

Respectfully submitted,



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